




Essential Knowledge

Science

Area	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
 <p>Biology</p>	<ul style="list-style-type: none"> • Make healthy choices about food, drink, activity and toothbrushing. • Begin to make sense of their own life-story and family's history. • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. • Know and talk about the different factors that support their overall health and wellbeing: <ul style="list-style-type: none"> - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian • Describe what they see, hear and 	<p><u>Animals</u></p> <ul style="list-style-type: none"> • Name a variety of common animals including fish, amphibians, reptiles, birds and mammals • Identify and group a range of familiar animals that are carnivores, herbivores and omnivores • Identify key features of a range of common animals <p><u>Human body and senses</u></p> <ul style="list-style-type: none"> • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense • Relate each of the human senses to organs. <p><u>Plants</u></p> <ul style="list-style-type: none"> • Identify a range of local plants, including deciduous and evergreen trees • Name parts of a range of familiar plants. • Compare and contrast a collection of items, sorting into categories: 'living', 'dead' and 'things that have never been alive'. 	<p><u>Animals including Humans- diet and hygiene</u></p> <ul style="list-style-type: none"> • Describe the relationship between adult animals and their offspring. • Identify human's basic needs (water, food and air). • Describe the importance of a healthy diet, hygiene and exercise. <p><u>Living things and their habitats</u></p> <ul style="list-style-type: none"> • Explain how, for a named animal or plant, it gets what it needs from its habitat and other living things that are there. • Identify a range of living things in habitats of various sizes. • Construct a simple food chain and identify what is eating what. <p><u>Plants</u></p> <ul style="list-style-type: none"> • Observe and describe stages of development of a full grown plant. • Explore and identify what plants need to thrive: including water, light and suitable temperatures. 	<p><u>Animals including humans- skeletons, muscles and nutrition</u></p> <ul style="list-style-type: none"> • Explain the ways animals and plants get their food. • Name the different food groups. • Explain the types of nutrients humans need compared to other animals. • Explain why a varied diet is important. • Name the different types of skeleton with examples. • Label a human skeleton with some scientific names for bones. • Label some pairs of muscles in the body. <p><u>Plants</u></p> <ul style="list-style-type: none"> • Explain what all plants need to flourish and recognise how these requirements vary in amount. • Describe what each part of a flowering plant does. • Explain, with the aid of a diagram or plant, how water is carried up from the soil. 	<p><u>Animals including humans- digestive system and teeth</u></p> <ul style="list-style-type: none"> • Identify what each of the principal organs in the digestive system do including mouth, tongue, teeth, oesophagus, stomach, and small and large intestine. • Describe the function of each type of tooth in the human skull. • Use a food chain to represent predator prey relationships. <p><u>Living things and their habitats</u></p> <ul style="list-style-type: none"> • Suggest different ways of sorting the same group of living things, e.g. grouping birds according to where they live, what they eat and size of adults. • Use classification keys to group and identify members from a range of familiar and less familiar living things. • Describe examples of living things that 	<p><u>Animals including humans- Growth and puberty</u></p> <ul style="list-style-type: none"> • Describe the changes as humans develop to old age, e.g. trends in changes to size, weight, mobility etc. • Describe the changes experienced in puberty <p><u>Living things life cycles</u></p> <ul style="list-style-type: none"> • Understand life cycles of local plants and animals • Identify similarities and differences in two different life cycles, e.g. sparrow and butterfly, with reference to eggs and intermediate stages. • Understand the work of naturalists/animal behaviourists e.g David Attenborough or Jane Goodall • Describe in sequence the stages of reproduction in some plants and animals including sexual and asexual reproduction. 	<p><u>Animals including humans- Circulatory system and nutrition</u></p> <ul style="list-style-type: none"> • Describe what heart, blood vessels and blood do, e.g. carry oxygen to all parts of the body. • Suggest how their bodies are affected by substances and actions, e.g. that a high fat diet coupled with little exercise is likely to lead to obesity. • Describe with aid of diagrams the route that water takes within animals, e.g. through the human body. • Use the work of scientists to back up their understanding of the impact of diet, drugs, exercise and lifestyle on the way their bodies function. <p><u>Living things and their habitats</u></p> <ul style="list-style-type: none"> • Through direct observations, classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles,

	<p>feel while they are outside.</p> <ul style="list-style-type: none"> • Recognise some environments that are different to the one in which they live. • Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. • Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. 			<ul style="list-style-type: none"> • Explain how pollination, seed formation and seed dispersal play a role in the reproduction of flowering plants. • Set up a fair test to explore what a plant needs to grow. 	<p>are threatened by changes to environments, e.g. owls and habitat loss.</p>		<p>birds and mammals) using classification systems and keys.</p> <ul style="list-style-type: none"> • Use similarities and differences in observable features to decide how living things should be grouped, e.g. a cat is a mammal because it is warm blooded and gives birth to live young. • Explain why certain features are useful in classifying living things, e.g. backbones in animals and flowers in plants. • Understand the work of Carl Linnaeus, a pioneer of classification <p><u>Evolution and inheritance</u></p> <ul style="list-style-type: none"> • Use fossils as evidence that living things have changed over time, e.g. explain that these have died out and others have taken their place. • Recognise that offspring normally vary from each other and from their parents, e.g. that puppies vary from each other and from their parents. • Describe examples of a living thing that has adapted to live in a particular habitat and
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 <p>Chemistry</p>	<ul style="list-style-type: none"> • Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Talk about the differences between materials and changes they notice. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. 	<p><u>Materials</u></p> <ul style="list-style-type: none"> • Correctly identify both object and material. • Identify and name a range of materials including wood, plastic, glass, metal, water and rock • Describe a range of properties of a variety of materials. • Classify a variety of materials into groups based on physical properties. 	<p><u>Materials</u></p> <ul style="list-style-type: none"> • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • Describe changes achieved by applying forces in different directions, including squashing, bending, twisting and stretching. • Select and justify a material for a particular use. 	<p><u>Rocks and Soils</u></p> <ul style="list-style-type: none"> • Explain how fossils are formed, when things that have lived are trapped within rock. • Know who Mary Anning is and what she did. • Describe how soil is made. • Examine and test rocks, grouping them according to the results. • Describe some rocks and their uses, understand why some rocks might not be suitable for some uses. 	<p><u>States of matter</u></p> <ul style="list-style-type: none"> • Group materials according to their state of matter and discuss why some cannot be easily classified. • Describe how evaporation and condensation happen in the water cycle, and how temperature affects evaporation. • Identify changes of state and research values of degrees Celsius at which changes happen. 	<p><u>Properties and changes of materials</u></p> <ul style="list-style-type: none"> • Test and sort a range of materials based on their physical properties. • Describe how some materials, e.g. sugar, will dissolve and can be retrieved. • Justify separation techniques proposed, with reference to materials being separated including filtering, sieving and evaporating. • Show how the original materials can be retrieved from each of these changes. • Identify reactants and products of chemical changes and recognise these as being irreversible. 	

						<ul style="list-style-type: none"> • Use evidence to justify the selection of a material for a purpose. • Recall the works of chemists who have created new materials 	
 <p>Physics</p>	<ul style="list-style-type: none"> • Explain how things work and why they might happen. • Explore and talk about different forces they can feel. • Understand the effect of changing seasons on the natural world around them. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter 	<u>Seasonal changes</u> <ul style="list-style-type: none"> • Relate weather patterns and day length to seasons. • Describe seasonal changes 		<u>Forces and Magnets</u> <ul style="list-style-type: none"> • Compare how an object, such as a toy car, will move on different surfaces. • Recognise the difference between contact and contact forces. • Describe how magnets attract or repel each other, and attract magnetic materials. • Group materials on the basis of testing for being magnetic. • Describe and identify the poles of a magnet. • Predict outcomes of a particular arrangement of magnets. <u>Light</u> <ul style="list-style-type: none"> • Know that they are able to see because there is light. • Describe how some objects reflect light. • Describe how and why our eyes and skin should be 	<u>Electricity</u> <ul style="list-style-type: none"> • List examples of appliances that run on mains electricity and batteries. • Construct a simple circuit and name its components. • Sort materials into conductors and insulators, identifying metals as conductors. • Predict whether a particular arrangement of components will result in a bulb lighting. • Predict how the operation of a switch will affect bulbs lighting. <u>Sound</u> <ul style="list-style-type: none"> • Explain, with reference to vibrations, how an object makes a sound. • Describe the role of a medium in the 	<u>Forces- gravity, air and water resistance</u> <ul style="list-style-type: none"> • Explain that gravity causes objects to fall towards Earth. • Describe how motion may be resisted by air resistance, water resistance or friction. • Describe how some devices may turn a smaller force into a larger one. • Understand the works of Scientists who helped develop the theory of Gravitation <u>Earth and Space</u> <ul style="list-style-type: none"> • Name the sun and the 8 planets that orbit it. • Draw a diagram or use a model to describe planetary orbits. • Draw a diagram or use a model to describe the Moon's orbit around the Earth. • Describe the Sun, Earth & Moon as spheres. • Use a diagram or model to explain why the Sun seems to travel 	<u>Electricity</u> <ul style="list-style-type: none"> • Explain how number and voltage of cells affects the lamp or buzzer. • Explain the use of switches, how bulbs can be made brighter and buzzers made louder. • Represent a circuit that has been constructed using recognised symbols. <u>Light</u> <ul style="list-style-type: none"> • Represent light using straight line ray diagrams • Draw diagrams using straight lines showing light travelling to the eye. • Explain how we can see an object by referring to light travelling into the eye. • Draw a diagram showing an object, shadow and light to relate object shape to shadow shape.

				<p>protected from sunlight.</p> <ul style="list-style-type: none">• Explain how shadows are made.• Describe how to change the size of a shadow.• Look for patterns in what happens when a shadow changes when a light source is moved.• Measure shadows.• Record results in a table/graph.	<p>transmission of sound.</p> <ul style="list-style-type: none">• Describe the effect of moving further from the source of a sound.• Explain with reference to a particular object how the pitch of the sound can be changed.• Explain with reference to a particular object how the volume of the sound can be changed.	<p>across the sky, and what causes day and night.</p> <ul style="list-style-type: none">• Understand how the geocentric model of the solar system gave way to the heliocentric model by considering the work of scientists such as Ptolemy, Alhazen and Copernicus.	
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